

# BENTLEY STRUCTURAL™

## A comprehensive building information modeling (BIM) solution for the design and documentation of structural systems



BBC Broadcasting House  
(Image courtesy whitbybird)

With an intuitive user interface, extensive libraries of structural components, and powerful tools for modeling, drafting, and reporting, Bentley Structural supports all phases of the structural workflow, from the design and modeling of structural systems to structural analysis and construction documentation. Integrating design, visualization, drawing production, and reporting, Bentley Structural is part of Bentley's BIM solution of integrated design, engineering, and management applications for the entire lifecycle of constructed assets. Used on large and complex projects around the world, Bentley Structural was specifically developed to support workgroups and distributed teams in a managed environment, allowing architects, engineers, and contractors to build as one.

BIM enables business-critical benefits over traditional computer-aided drafting (CAD), eliminates waste, significantly reduces errors and omissions, provides greater predictability of costs and performance, allows exploration of more design options, and ultimately results in better buildings.



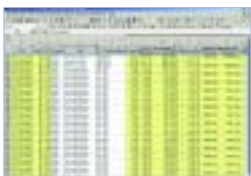
Detailed construction  
documentation  
(Image courtesy SSOE, Inc.)

### Structural design and information modeling

A comprehensive range of dedicated tools supports the design and modeling of structures in steel, concrete, and timber. Parametric components, such as walls, foundations, columns, beams, trusses, slabs, and bracings, allow dimension-driven creation and modification. Intersecting members are automatically coped or cut back from supporting members, and if necessary, rotated to the slope angle of their supports.

### Choice of 2D, 3D, or both

The building information model can be created and manipulated in a traditional 2D plan or an advanced 3D model environment - using the same tools and interface for either.



Member schedules including  
volume and weight calculations

### Integration with analysis and detailing

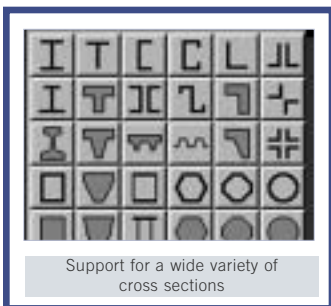
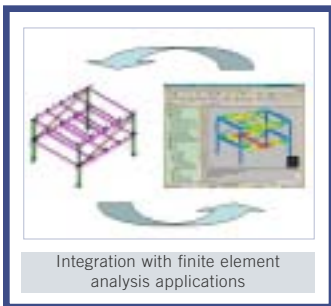
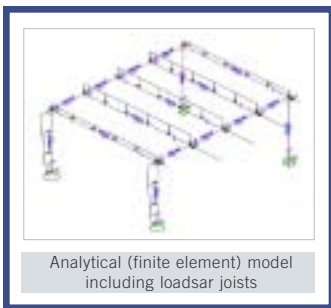
Simultaneously with the physical members, an analytical model is created, to which boundary conditions, member releases, and various load combinations can be added. This finite element information integrates directly with leading structural analysis applications. Integration with steel detailing and concrete reinforcement software is supported via industry-standard exchange formats.

### Rule-based drawing production

Plans, framing layouts, sections, and elevations comply with user-definable drawing standards and rules for resymbolization and annotation. Options are provided for single- or double-line representation, removal or display of hidden lines, and extensive labeling and annotation of structural members. Coordination and consistency is thereby ensured across all documentation.

### Integrated schedules and reporting

User-definable properties associated with structural members can be used to query the structural information model, to make selective or global changes to the geometry and nongraphical information, and to generate accurate component schedules that include lengths, volumes, weights, centers of mass, and more. Changes in Microsoft Excel spreadsheets, affecting attributes such as steel section size and height of single or multiple structural components, update both physical and analytical models.



## A managed environment

Bentley Structural can be integrated with Bentley ProjectWise, a collaboration server that manages access to project information across a LAN, WAN, VPN, or through the Internet, and publishes and synchronizes shared information, manages change, protects intellectual property rights, and more.

## BENTLEY STRUCTURAL AT-A-GLANCE

### Building information modeling (BIM)

- Structural design and construction documentation for structures in steel, concrete, and timber
- Choice to work in 2D plans, 3D models, or both - with a single set of tools
- Integrated analytical model with finite elements, nodes, boundary conditions and member releases, loads and load combinations

### Parametric and feature-based structural design

- Dimension-driven creation and modification of structural components
- Automatic user-definable cutbacks and coping of intersecting members
- Support for many metric and imperial steel section tables (American, British, Asia-Pacific, European, Canadian, and others)

### Coordinated construction documentation

- Plans, framing layouts, sections, and elevations created with extraction rules for resymbolization and member annotation
- Material-dependent hatching and patterning of cross sections
- Quantity takeoffs, member schedules, volume and weight analyses, and other reports
- Compatibility with office automation tools for further processing and formatting

### International and custom standards support

- Create, manage, verify, and enforce company and project standards
- Support for U.S. and other national CAD standards
- Support of DGN, DWG, DXF, PDF, STEP, IGES, IFC, and other major industry standards

### Integration with analysis and detailing

- Direct integration with GT STRUDL, STAAD.Pro, RAM, ROBOT, MIDAS/GENw, and SFRAME
- Export and import of industry standards CIMsteel CIS/2 and SDNF for analysis, steel detailing, and fabrication

### Visual Basic for Applications

- Wizards to create steel trusses, bar joists, handrails, columns with corbels, haunches, platforms, and other structural components
- Development of custom wizards and applications

### Interoperability with building design, engineering and analysis

- Fully integrated with Bentley Architecture™, Bentley Building Mechanical Systems™, Bentley Building Electrical Systems™, and more
- A shared multidisciplinary model for team collaboration and coordination
- Review and manage interferences across multiple files and disciplines in conjunction with Bentley Interference Manager™
- Simulated construction schedules in conjunction with Bentley Navigator™ and project management applications, such as Microsoft Project or Primavera P3

### Integration with managed environment

- Fully supported in Bentley ProjectWise, Bentley's comprehensive collaboration server

## SYSTEM REQUIREMENTS

- Software: MicroStation® v8.5 or higher (MicroStation® TriForma® extension)
- Processor: Intel Pentium-based or AMD Athlon-based PC or workstation
- Operating system: Microsoft Windows XP, Windows 98/2000
- Memory: 128 MB RAM
- Disk space: 200 MB minimum free disk space
- Input device: Mouse or digitizing tablet (tablet on Windows requires WINTAB driver or Bentley's Windows Digitizer Tablet interface)

## CALL TODAY FOR MORE INFORMATION

Bentley Systems, Incorporated is a global provider of collaborative software solutions that enable our users to create, manage and publish architectural, engineering and construction (AEC) content. As a part of those solutions, Bentley provides professional services including implementation, integration, customization and training.

Visit us on the Web for more information about Bentley solutions and services. [www.bentley.com](http://www.bentley.com)

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To find a local Bentley office, please visit [www.bentley.com/corporate/contacts](http://www.bentley.com/corporate/contacts).

